

- 1) What are the dimensions of $\begin{bmatrix} 1 & 5 & 0 & -1 \\ 6 & -2 & 8 & -4 \end{bmatrix}$?
- A) 4×4 B) 2×4 C) 2×2 D) 4×2
- 2) If the augmented matrix for a system is $\begin{bmatrix} 2 & 1 & 3 \\ 3 & 2 & 1 \end{bmatrix}$, what is the system of equations?
- A) $2x + y = 3$ and $3x + 2y = 1$ C) $2x - y = 3$ and $3x - 2y = 1$
B) $2x + 3y = 1$ and $3x + y = 2$ D) $3x + y = 3$ and $x + 2y = 1$
- 3) If the augmented matrix for a system is $\begin{bmatrix} 1 & 0 & 3 \\ 0 & 2 & 4 \end{bmatrix}$, what is the solution?
- A) $\{(0,2)\}$ B) $\{(1,2)\}$ C) $\{(3,2)\}$ D) $\{(3,4)\}$
- 4) Name the following matrix by its dimensions:

$$M = \begin{bmatrix} 3 & 1 \\ 1 & 3 \\ 5 & 7 \end{bmatrix}$$

- 5) Write a matrix B of order 2×3 whose elements are $b_{11} = 2$, $b_{12} = 3$, $b_{13} = 4$, $b_{21} = -3$, $b_{22} = -4$, and $b_{23} = 5$.
- 6) Solve the system of linear equations for all variables:

$$\begin{aligned} 2x - y + z &= 6 \\ -x + 2y + z &= 0 \\ x + y - z &= -3 \end{aligned}$$

- 7) Solve the following system of equations using elimination (NOT MATRICES)

$$\begin{aligned} x + 3y + z &= 3 \\ x + 5y + 5z &= 1 \\ 2x + 6y + 3z &= 8 \end{aligned}$$

8. Solve the system of linear equations for all variables:

$$x - 3z + 2 = 0$$

$$y + 3x - 5 = 2z$$

$$2x + 2y + z = 4$$

9. Solve the system of linear equations for all variables:

$$x - 2y + 3z = 9$$

$$-x + 3y = -4$$

$$2x - 5y + 5z = 17$$

10. Solve the following systems of equations algebraically:

a.
$$\begin{aligned} 7x - 2y &= 14 \\ -3y + 7x &= 21 \end{aligned}$$

b.
$$\begin{aligned} -4x + 5y - 14 &= 0 \\ 8 + 4x &= 3y \end{aligned}$$

c.
$$\begin{aligned} 93 - a &= 4b \\ a + 4b &= 43 \end{aligned}$$

d.
$$\begin{aligned} 8x + 12y &= 48 \\ 6x + 9y &= 36 \end{aligned}$$

e.
$$\begin{aligned} 4x - 5y &= -6 \\ -3y - 2 &= -x \end{aligned}$$

$$x - 2y + z = 7$$

11. Given: $3x + y - z = 2$

$$2x + 3y + 2z = 7$$

- (a) Write the augmented matrix. Label it G .
- (b) Using G add $-3R_1$ to R_2 . Label the new matrix as H .
- (c) Using H multiply R_1 by -2 and add it to R_3 . Label the new matrix as J .
- (d) Using J , multiply R_2 by -1 and add it to R_3 . Label the new matrix as K .
- (e) Using K , add R_3 to R_2 . Label the New matrix L .
- (f) Using L , multiply R_2 by $\frac{1}{7}$. Label the new matrix P .
- (g) Using P , multiply R_3 by $\frac{1}{4}$. Label the new matrix Q .
- (h) What is the solution for the system?